

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

|   |   |   |                       |
|---|---|---|-----------------------|
| Applicant's or agent's file reference<br><b>M/44220-PCT</b>   |   | FOR FURTHER ACTION                                  | See Form PCT/IPEA/416 |
| International application No.<br><b>PCT/EP2004/008295</b>   | International filing date (day/month/year)<br><b>23.07.2004</b> | Priority date (day/month/year)<br><b>25.07.2003</b> |                       |
| International Patent Classification (IPC) or national classification and IPC<br><b>D21H17/74, C08L39/D2</b> |   |   |                       |
| Applicant<br><b>BASF AKTIENGESELLSCHAFT</b>   |   |   |                       |

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

|                                     |              |  |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report  |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention   |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2), with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited  |
| <input checked="" type="checkbox"/> | Box No. VII  | Certain defects in the international application   |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application  |

|   |                                   |
|---|-----------------------------------|
| Date of submission of the demand        | Date of completion of this report |
| Name and mailing address of the IPEA/EP | Authorized officer                |
| Facsimile No.                           | Telephone No.                     |

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/008295

Box No. I

Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-24 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 1-13 \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- sheets \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

|                               |        |      |     |
|-------------------------------|--------|------|-----|
| Novelty (N)                   | Claims | 1-13 | YES |
|                               | Claims |      | NO  |
| Inventive step (IS)           | Claims | 1-13 | YES |
|                               | Claims |      | NO  |
| Industrial applicability (IA) | Claims | 1-13 | YES |
|                               | Claims |      | NO  |

## 2. Citations and explanations (Rule 70.7)

1 This report makes reference to the following documents:

D1: EP 0 374 646 A (BASF AG)

27 June 1990 (1990-06-27)

D2: WO 97/42229 A (BASF AG; UTECHT JENS (DE);

MOENCH DIETMAR (DE); NIESSNER MANFRED (DE))

13 November 1997 (1997-11-13)

D3: JP 8 059740 (HYMO CORP) 5 March 1996 (1996-03-

05); see the abstract, Patents Abstracts of Japan (mentioned in the application)

2 INDEPENDENT CLAIMS 1, 10, 12 AND 13

2.1 D3, which is considered to represent the prior art closest to the subject matter of claims 1, 10, 12 and 13, discloses an aqueous composition comprising a fine-grained filler and a water-soluble amphoteric copolymer, said composition being suitable for use as an additive to paper pulp, wherein the copolymer is obtained by copolymerization of a monomer mixture containing an N-vinyl carboxylic acid amide (for example, N-

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Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

vinyl formamide) and a monoethylenically unsaturated acid (for example, acrylic acid) and subsequent hydrolysis.

The subject matter of claim 1 thus differs from the known composition in that at least one monomer is selected from among monoethylenically unsaturated sulphonic acids, phosphonic acids, phosphoric acid esters and derivatives thereof.

Therefore, the subject matter of claim 1 and, consequently, also of claims 10, 12 and 13 is novel (PCT Article 33(2)).

- 2.2 The problem addressed by the present invention may therefore be considered that of providing a composition which, used as an additive in paper, cardboard and paperboard manufacture, leads to products in which the dried paper exhibits good strength properties (cf. the description, paragraph running from the bottom of page 3 to the top of page 4).

The solution to this problem proposed in claims 1, 10, 12 and 13 of the present application involves an inventive step (PCT Article 33(3)). The reasons are:

D1, example 25, describes an aqueous composition, that is, a pulp for the manufacture of paper. Said composition (pulp) comprises a fine-grained filler (kaolin) and a water-soluble hydrolysed polymer of

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poly-N-vinyl formamide (cf. example 1).

D1, example 10, describes a hydrolysed copolymer of N-vinyl formamide and acrylamidomethanepropanesulphonic acid. The emulsions of hydrolysed N-vinyl formamide polymers described in D1 are used, for example, as flocculants and dewatering and retention agents in paper manufacture and as dispersants, etc.

However, D1 contains no suggestion that the use of this copolymer in paper manufacture could lead to paper products having good strength properties.

Conversely, D2 discloses (cf. the paragraph running from the bottom of page 9 to the top of page 10) vinyl amine unit-containing polymers which are suitable for use as emulsifiers in the production of aqueous filler sludges.

These polymers are **obtainable** (!) by copolymerizing a monomer mixture containing an N-vinyl carboxylic acid amide (for example, N-vinyl formamide) and other monomers copolymerizable therewith, for example, sulpho group-containing monomers (cf. page 4, line 43 to page 6, line 8).

Again, a person skilled in the art receives no incentive to use hydrolysed N-vinyl carboxylic acid amide-based copolymers with, for example, vinyl sulphonic acid as a comonomer (D2, page 4, last paragraph) to solve the problem of interest.

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- 3      Claims 2-9 and 11 are dependent on claims 1 and 10, respectively, and therefore likewise meet the PCT requirements for novelty and inventive step.

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Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

- 1 Contrary to PCT Rule 5.1(a)(ii), the description does not cite D1-D2 or indicate the relevant prior art disclosed therein.